Choosing the Right Fitting Tools

By Patrick Sarver

With all the major equipment used to produce frames at a production facility, it's often easy to overlook fitting tools. Today there are two basic types of fitting tools—tab guns and staplers—that insert tabs (also called points) and staples into the inside of the back of the frame to hold everything in place. Both staplers and tab guns essentially work the same but insert different types of fasteners. And while staples and tabs are rigid enough to hold in the artwork, glass, and backing board, flexible tabs or points allow art or photos to be taken in and out of the frame easily by the end user.

A pneumatic tab gun or stapler is very simple to operate, with a trigger and pull down that lets you shoot one staple or tab at a time. Others are automatic and keep firing until you stop. Some staplers have a special head that attaches to the front of the tool to make sure that the staples stick out from the frame about ¼" or so, which is used to hold the materials.

Staples or Tabs?

"The first question a production framer needs to ask is what he is going to be fitting," says Clay Simpson, sales manager for Active Sales. "Then you look at the type of fastener needed to do that fitting. And then you look at the tools."

"Whether you're shooting a tab or a staple in the back to hold down the artwork, fitting tools basically do the same thing," says Ken Levitt, sales manager of Frameware. "There's a lot of personal preference involved in choosing. For someone doing a lot of production, the difference between tabs and staples usually is decided by the fact that staples cost about a quarter of what tabs do. The tab's advantage is that it's easily bendable, so you can take artwork in and out of a frame. Most big production framers use staples for framed art because it usually doesn't get changed. For a photo frame, on the other hand, a tab is preferred because it's easy for an end user to bend back the tab, put in a picture, and then put the tab back. You could do that with a staple, but a tab is an easier way to go."

The Duo Fast Sure Shot pneumatic stapler, distributed by Frameware, shoots ⅜" crown staples in ¼", ⅜", ½", and 9/16" lengths.

While production framers have a choice of staples or flexible or hard tabs, the basic trend is for tabs to be primarily used to make photo frames or poster frames that need to be opened to put in the artwork.

While tabs offer an advantage in one area, flexibility is not always a benefit. "One thing to pay attention to with flexible points is that they definitely give a bit compared to staples on bigger, heavier pieces because there's more pressure put on them," says Aimee Eichert, vice president of sales, AMS/Art Materials Service. "Normally you use staples because the price difference is so great. Still, it depends on your application."

Another factor is that tabs basically come in one width whereas staples come in different widths and lengths. As Levitt points out, "a ⅜" wide staple might come in ½" or 9/16" so you can vary the amount of staple sticking out of the frame."

Tab guns and staplers are simple yet important tools for any production framer. Here's what to look for when choosing fitting tools for your operation.

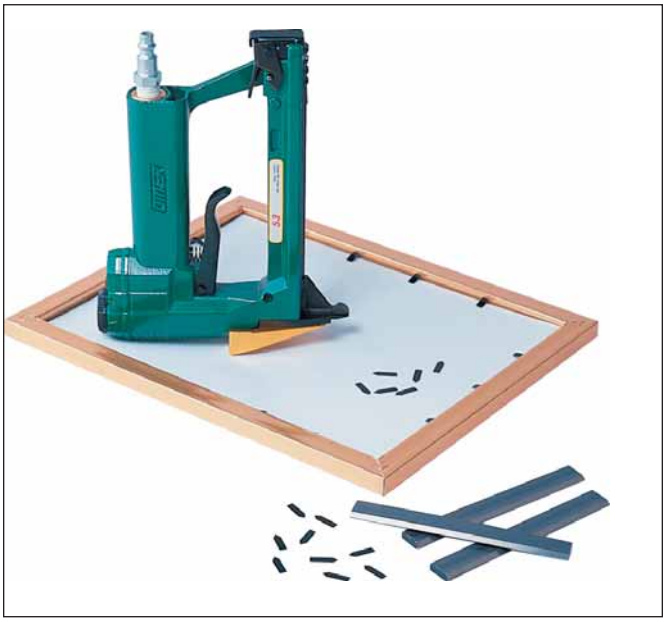
Choosing Tools

"If you shop for tools on the basis of initial price without much regard for consumables, you would be making a mistake," says Jim Miller, a consultant for The Fletcher-Terry Company. "The first consideration is how you are going to use the tool, and select one that's most appropriate for your purpose. Then select one that is durable. You want a tool that isn't going to jam and that has strong, durable springs. The spring, which is activated by a pneumatic cylinder, is what really drives the fastener. Then look at what is most convenient to use, keeping in mind ergonomics, compact size, and light weight. You want a tool that feels good in the hand, not too big and bulky and is easy to use with a good grip. Third is the design of the fastener itself, which should be suitable for your purpose, and the cost of the consumables. And finally you should look at the price of the tool."

"It is important to make sure you try the tools in your hand to make sure they're comfortable and that you can hold them correctly against the frame," says Eichert. "They will be more efficient and quicker when you can hold them right. Also make sure the tool is configured right, so that it's nice and comfortable when you're running along the inside of the frame."

As a framing company gets larger, there is a common progression in moving up to faster, more efficient fitting tools. "You start out with spring-loaded hand tools, then move to pneumatic tools," says Simpson. "Those single-shot pneumatics are then replaced with auto-repeat production staplers. For higher production you need an auto-fire stapler. You pull the trigger once, and it keeps firing. Operators get very skilled at sliding the tool as it's stapling. If your volume continues to increase, you add more workstations. If you've got enough work you can then consider moving up to one of the robotics machines by Cassese or ITW AMP. You can put a frame in one end of those automatic fitting machines, push a button, and the machine will measure the size of the frame, decide on the best staple or tab pattern based on information in the program, shoot in fasteners and do it in volume, and continue to do the pattern until you change it."

Even without automated fitting machines, you can set up your production line to take maximum advantage of fitting tools for speed and efficiency. "We have two different models, a single-fire tool and an automatic hand-held tool," says Tony Lambert, technical services manager at ITW AMP. "When frames come down a conveyer line, there are usually two people firing automatic tools. Once you pull the trigger it keeps firing until you let go. One operator would fire the top and left side of a frame while a second operator would fire the bottom and right side. If frames are being delivered to operators on pallets, they may use a single-fire tool and put a lazy Susan on a production table and rotate the frame while using a single-fire tool. From our experience, I'd say that probably 70 percent of OEMs use single-fire tools while 30 percent use automatic-fire tools."



The Tab Point Tool from ITW AMP is a single-shot flexible tab gun that is light weight and can be driven by a portable air compressor.

Pneumatic vs. Manual

"With pneumatic tools you know you're going to get the right amount of pressure for the type of frame, hardwood or softwood," says Eichert. "Also, it's not that much more expensive to go to pneumatic, and you're saving your fitters' hands because you don't cause carpal tunnel syndrome and arthritis. Unless you're a small shop, you definitely should be using

The AMS S200 air-powered staple gun is designed to insert 3/8" wide crown staples and is available with or without a front spacer for fitting applications.

The Fletcher-Terry Pneumatic FlexiMaster is an air-powered single-fire point driver that is designed for comfort with an ergonomic design.

pneumatic tools. If you're doing more than 20 frames a day, you need pneumatic fitting tools. You'll get much better results, and won't damage your hands. The points and staples used in pneumatic tools are also a lot less expensive than those used in a manual stapler or driver, so over time you make up your investment in the tool by saving on materials and time—not to mention workers' comp."

Still, there are some advantages to using manual fitting tools instead of pneumatics, says Miller. "You don't have to lubricate them nearly as much," he says. "But mostly, with a pneumatic tool, you tend to overuse it. You can very easily drive 10 staples instead of 1 because it's so easy. You keep pulling the trigger, and that can lead to waste. That's important, because over the life of the tool, fitting points will cost you a lot more than the tool itself."

To get around that tendency, Miller advises production facilities to make sure that the tools are used properly and that the points or staples aren't being wasted. "Just train your people not to over- or under-use the tools," he says.

Overall, time savings and ease of use outweigh any extra expense that result from driving too many points or staples. "Manual fitting tools are just much slower than pneumatic," says Simpson. "A small frame shop might be use hand spring-loaded tab points. But when a framer moves into production, the situation is that manual staplers and tab drivers take longer to use and are hard on employees, and tabs are expensive. If an owner spends a couple hundred dollars on a pneumatic tool, the job goes much faster, and he'll probably get immediate payback in supplies and time depending on how many frames he's doing."

Staples

"If you're going to do bigger, heavier pieces, you want to make sure that you have a heavier gauge staple and a tool that will accommodate longer staples so that it goes firmly into the frame," says Eichert. "On bigger frames, test staples to make sure they grip into the frame correctly and won't fall out. For bigger frames, add more staples to make sure they'll hold with enough pressure. If you're not sure, you should always go to the next size. For instance, I'd always use a 7/16" long staple instead of 3/8" or 1/2" for any frame over 22"x28". Definitely for 32"x40", you want to use longer staples. You want to make sure that you're pressing the front of the glass to the frame so that you don't have any gapping and that everything's secure. So you put in staples every 2" or 3", preferably closer to 2"."

Staplers used for fitting need a standoff or nose attached to the front to make sure the staple sticks out the right length to hold the contents. "A standard stapler—what we call a flush stapler—is going to drive a staple all the way in," says Simpson. "For fitting you need the staple to be left up so that it can hold the artwork and glass and backing in place. So you hold it away from the frame by 1/4". There are special tools for tab guns, while a fitting stapler has some sort of nose—either a factory configuration or a user-customized nose."

Photo courtesy of Active Sales

Workstations using pneumatic fitting tools speed the fitting process for framed art as well as for readymade and photo frames.

It's also important to use the right staple for the job. "Most people use 3/8" wide staples," says Levitt. "These come in different lengths. For a 1/2" long staple, the head allows the staple to go 1/4" into the wood and stick out 1/4" to hold everything down. The majority of the guns use a 3/8" wide crown staple, although there are some that use 1/2" wide staples. You can typically load

Robotic Fitting Machines

At the upper end of production are fitting machines that are automated, in-line machines that process hundreds of frames an hour. “For fitting frames we have two models of robotic machines,” says Lambert at ITW AMP. “One does large frames up to 30"x40" outside dimension. That's the slower, single-tool tab machine. There's a second, high-speed machine, which works on frames up to 22”x22” outside dimension. For 8”x10” frames, the slower one that can handle larger frames can fit approximately 25 a minute, while the high-speed tab machine can fit 60 frames a minute.”

The ITW AMP High Speed Tab Robot can install tabs in 60 frames a minute for frame sizes of 5”x7” to 20”x20” and can be linked to a matching Frame Assembly Robot.

Another automatic frame backing machine, the Cassese FB600, can be used to insert either staples or flexible tabs into a frame. Using a a total of 16 guns, it can fit 12 frames a minute at a 9-1/2”x12” outside dimension and up to 20 frames a minute for smaller frames.

These machines are set up in line with powered conveyers. “You'd have two or three operators, depending on the speed you're running, drop off the face paper, glass, and easel or door backs as the frames go down the conveyor at a consistent pace,” says Lambert. “As a frame enters, the machine reads the dimensions of the frame and tracks and fires tabs as the frame goes by.”

The number of frames these machines will do before they have to be refilled with tabs depends on how many tabs are used per frame, says Lambert. “There are 3,300 tabs in the magazine on the single-tool tab machine. It automatically reloads from a reload station and continues production.”

Each gun on the Cassese holds 220-340 tabs or 120-200 staples depending on size. If the machine runs out of tabs or staples during fitting, it will take another gun and continue on at the same place.

“The point of these machines is to make sure you have consistent production with frames constantly running down the conveyor. You lose 300 frames if you stop for anything.”

The ITW machines are driven by Windows XP-based computers. “You can train an average line worker to run any of this equipment,” says Lambert, “Once you've programmed your database, it takes about 30 seconds to change from one size to another.”

On the Cassese, a touch screen monitors total fasteners used, time on conveyor belts, total fitting time, and the level of tabs or staples available in each gun. A color-coded multi-light system also shows the status of a number of functions of the machine.

¼", ⅜", ½", and 9/16" lengths into a gun.”

There are three basic measurements of staples, says Simpson: wire gauge and crown, width, and leg length. “The wire could be what we call 30 thousandths wire, which is the thickness of the wire itself. Senco C wire, which is the most common upholstery and most common fitting staple, is a 30 thousandths wire with a ⅜" crown. The two dimensions that differentiate one staple from another is the thickness of the wire and the crown, which is the top part of the staple.”

Tabs

“In the production world there is basically one tab size, ⅝", although there is a second one that is rarely used, which is 1",” says Simpson. “Hard points aren't used much in the production world because they cost more. And those usually shot with hand tools, which is a very common tool for a custom framer. But a production framer probably won't use tabs unless it's a flexible tab for something that the end user needs to open.”

If you're working with point drivers and flexi points, you want the point to be driven at a certain angle so it's as flush against the board as possible and not angled up so that it sticks out of the paper backing. “Some tools have wedges on the front that help with the angle,” says Eichert. “This steel wedge can help make sure the point is driven into the frame at the right angle.”

When framing large or heavy frames, using a fastener that is as stiff as possible is also important so it would hold the load into the frame better. “Flexible points often could be pushed out from the front during handling,” points out Miller. “If you hold the frame and push on the glass, you can push the contents of the frame right out by bending the points.”

Reliability

"There are only a couple of major brands for each stapler as well as tab guns on the market, so you need to look at service agreements, where the tools can be fixed, if parts are readily available, and things like that," says Levitt. "Support behind the tool is important."

Another important point, he says, is to use fasteners designed for a specific tool. "We sell an ITW AMP air tab gun, so we always suggest using tabs made by ITW because they fit the gun right and produce less wear on the mechanism. The same thing with staplers like the DuoFast. Their staples fit exactly and fire just like they're supposed to. There are generic staples and tabs out there, but the original brands aren't that much more money."

Miller also says that he would choose a manufacturer whose consumables are available from multiple sources. "You should be willing to spend extra money to get fitting tools that are available from multiple distribution points," he says. "In other words, stick with a major brand."

When you choose either staplers or point drivers, it's good to know where they're manufactured, how long they've been on the market, what the warranty is, how easy it is to get spare parts, and how to maintain them. "The manufacturer can provide all these details about maintenance and service," says Eichert.

Maintenance of fitting tools is very simple. "It's basically about keeping dry air going to the tool, which is important for any piece of pneumatic equipment, and a couple drops of lubricant a day," says Lambert. "That's all the preventative maintenance they need. People who run 24 hours a day need a tool that's going to last without any so-called 'maintenance replacement' parts. They need a tool that's going to last a while before they run into maintenance issues." ■